Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-13 (Canceled)

14. (Currently Amended) A method for preparing ~~a~~ **the** carrier **of claim 50** ~~having a biomolecular interaction incorporated within the carrier~~ comprising:

(a) reacting a reactant comprising a functionalized metal alkoxide or a corresponding or other silicate precursor with water;

(b) adjusting the pH to a value between 4 and 10 either before or during the addition of an aqueous solution containing a biomolecular interaction to provide a mixture;

(c) casting the mixture;

(d) allowing the mixture to gel and age; and

(e) partially drying the aged gel.

15. (Original) A method according to claim 14 wherein the reaction occurs alone or as mixtures of more than one reactant where the reactant is a silicon, titanium, vanadium or cerium-based metal alkoxide, alkylated metal alkoxide or otherwise functionalized metal alkoxide.

16. (Original) A method according to claim 15 wherein the functionalized metal alkoxide is aminopropyl triethoxysilane.

17. (Original) A method according to claim 14 wherein the corresponding functionalized metal alkoxide is metal chloride, silazane, or polyglycerylsilicate.

18. (Original) A method according to claim 17 wherein the reacting occurs in an acidic or basic aqueous medium.

19. (Currently Amended) A method according to ~~any one of claims~~ **claim** 18 wherein the reactant and water are in a molar ratio of from about 1:1 to about 20:1 water/reactant.

20. (Original) A method according to claim 19 wherein the casting of the mixture is in a mold, a column, a microtiter well, a spot on a surface by pin spotting, inkjet deposition or screen printing ; or a film on a surface by dipcasting, spin-casting or spraying,

21. (Original) A method according to claim 20 wherein the gel and aging is at temperatures from about 0°C up to about 40°C.

22. (Original) A method according to claim 21 wherein the partial drying is at temperatures from about 4° to about 40°C.

23. (Currently Amended) A method for the preparation of ~~a~~ **the** carrier **of claim 50** ~~having a bioactive bimolecular interaction incorporated in the carrier~~ comprising:

(a) incorporating the bioactive biomolecular interaction in the carrier;

(b) hydrolysis and polycondensation of at least one monomer to provide a solid matrix bonding the bioactive biomolecular interaction which is incorporated in the carrier ; and

(c) imparting mechanical, chemical and thermal stability in the matrix.

24. (Original) A method according to claim 23 wherein the at least one monomer is a functionalized or non-functionalized alkoxysilane; functionalized or non-functionalized bis-silane; functionalized or non-functionalized chlorosilane; sugar, polymer, polyol or amino acid substituted silicate; or additives selected from any available organic polymer, polyelectrolyte, sugar (natural or synthetic) or amino acids (natural and non-natural).

25. (Original) A method according to claim 24 wherein the monomer is based on titanium, vanadium or cerium.

26. (Original) A method according to claim 25 wherein mechanical, chemical and thermal stability is imparted by combination of precursors and additives.

27. (Original) A method according to claim 25 wherein mechanical, chemical and thermal stability is imparted by choice of aging and drying methods.

28. (Original) A method according to claim 25 wherein mechanical, chemical and thermal stability is imparted by combination of precursors and additives, and by choice of aging and drying methods.

29. (Original) A method according to claim 28 wherein the carrier comprises a silica based glass.

30. (Original) A method according to claim 29 wherein the carrier comprises a silicon, titanium, vanadium or cerium-based metal alkoxide, alkylated metal alkoxide or otherwise functionalized metal alkoxide or a corresponding metal chloride, silazane, polyglycerylsilicate or other silicate precursor .

31. (Original) A method according to claim 29 wherein the carrier is derived by a sol-gel processing method.

32. (Original) A method according to claim 31 wherein the carrier is bioactive.

33. (Currently Amended) A method of treating an animal comprising administering an effective amount of a biologically active biomolecular interaction contained in a carrier **of claim 50,** such that the animal is thereby treated.

34. (Original) A method according to claim 33 wherein the treating is by site-specific targeting in the animal.

35. (Original) A method according to claim 34 wherein the effective amount of a biologically active biomolecular interaction is a chemotherapeutic for treating cancer.

36. (Original) A method according to claim 35 wherein the carrier is a carrier according to claim 7.

37. (Currently Amended) A method for screening a compound to determine the degree of inhibition or binding of a biomolecular interaction by the compound comprising contacting the compound to be tested with the molecules of a biomolecular interaction wherein the molecules are incorporated within a carrier **according to claim 50,** and they are capable of forming a biomolecular interaction in the carrier, and wherein inhibition of the formation of the biomolecular interaction or binding by the compound causes a change in the amount of a detectable signal produced by the molecules of the interaction of by one or more labels at or near the site of interaction of the molecules.

38. (Canceled)

39. (Currently Amended) A method according to claim ~~38~~ **37,** wherein the carrier comprises a silica based glass.

40. (Original) A method according to claim 39 wherein the carrier is prepared from a silicon, titanium, vanadium or cerium-based metal alkoxide, alkylated metal alkoxide or otherwise functionalized metal alkoxide or a corresponding metal chloride, silazane, polyglycerylsilicate or other silicate precursor .

41. (Original) A method according to claim 40 wherein the carrier is derived by a sol-gel processing method.

42. (Original) A method according to claim 41 wherein the bimolecular interaction is bioactive.

43. (Original) A method according to claim 42 wherein the carrier is bioactive.

44. (Currently Amended) A method of high through put screening for a substance which inhibits or binds a biomolecular interaction, comprising the steps of:

(a) incorporating a biomolecular interaction within ~~a~~ **the** carrier **of claim 50**;

(b) forming an array of sol-gel derived spots on a support wherein each spot contains a biomolecular interaction;

(c) measuring a original signal from the biomolecular interaction in the absence of any other substances;

(d) reversibly disrupting the biomolecular interaction such that the signal is detectably altered;

(e) adding the substance to the biomolecular interaction in the carrier, and reversing the disruption; and

(f) measuring the signal;

where the original signal is not recovered, the substance is determined to bind or inhibit the bimolecular interaction.

45. (Original) A method according to claim 44 wherein the signal is excited by a He-Cd laser through an optical fiber or by a nitrogen laser through a bifurcated optical fiber.

46. (Original) A method according to claim 45 wherein the signal is detected through the same fiber

47. (Original) A method according to claim 46 wherein the signal is detected in a time-gated or time resolved mode.

48. (Original) A method of detecting signals generated by an array according to claim 47 wherein the signal is excited by a laser, lamp or light emitting diode, either directly or through an optical fiber, and fluorescence is detected using a CCD camera.

49. (Currently Amended) A method of normal or frontal affinity chromatography for pre-screening a substance for binding or inhibiting a bimolecular interaction comprising:

incorporating a biomolecular interaction or individual protein partners within ~~a~~ **the** carrier **of claim 50**;

placing said carrier in a column;

adding a denaturant;

passing said substance including an indicator ligand through the column in conjunction with removal of the denaturant; and

determination of retention behaviour by fluorescence or mass spectrometry.

50. (Currently Amended) A carrier comprising a matrix of inorganic, organic, or organic and inorganic material and containing a biomolecular interaction entrapped within the matrix, wherein the biomolecular interaction comprises two or more biological species that can be reversibly **disrupted** ~~dissociated~~ from the other **under reversibly disrupting conditions**.

51. (Currently Amended) The carrier of claim 50 wherein the biological species of the biomolecular interaction can under denaturing conditions be reversibly **disrupted**

~~dissociated~~ within the matrix and wherein the matrix in the denaturing conditions inhibits aggregation of the biological species.

52. (Previously Presented) The carrier of claim 51 wherein the carrier has a pore size that is selected to inhibit leaching out of the biomolecular interaction or biological species thereof.

53. (Previously Presented) The carrier of claim 52 wherein pore size of the carrier is selected to enable potential modulators of the biomolecular interaction to pass in and out of the matrix.

54. (Previously Presented) The carrier of claim 51 wherein the biological species of the biomolecular interaction can under naturing conditions associate with one another.

55. (Previously Presented) The carrier of claim 54 wherein the association between the biological species under naturing conditions is selected from the group consisting of one or more of: ionic bonds, hydrogen bonds, van der Waal's interactions, hydrophobic interactions, dipole-dipole interactions, dipole-induced dipole interactions, and induced dipole-induced dipole interactions.

56. (Previously Presented) The carrier of claim 54 wherein the carrier has a pore size that is selected to inhibit leaching out of the biomolecular interaction or biological species thereof.

57. (Previously Presented) The carrier of claim 56 wherein pore size of the carrier is selected to enable potential modulators of the biomolecular interaction to pass in and out of the matrix.

58. (Previously Presented) The carrier according to claim 50 wherein the carrier comprises a silica based glass.

59. (Previously Presented) The carrier according to claim 50 wherein the material is selected from the group consisting of a silicon, titanium, vanadium cerium-based metal alkoxide, cerium-based metal alkoxide, alkylated metal alkoxide, an otherwise

functionalized metal alkoxide, a corresponding metal chloride, silazane, polyglycerylsilicate, and other silicate precursors

60. (Previously Presented) The carrier according to claim 50 derived by a sol-gel processing method.

61. (Previously Presented) The carrier according to claim 60 wherein the biomolecular interaction is bioactive.

62. (Previously Presented) The carrier according to claim 61 pre-treated to contain components found in an animal fluid.

63. (Previously Presented) The carrier according to claim 62 wherein the pre-treatment is by immersion in a solution containing components found in an animal fluid for a period of up to about seven days prior to use.

64. (Previously Presented) The carrier according to claim 63 wherein the animal fluid is interstitial fluid.

65. (Previously Presented) The carrier according to claim 64 wherein the carrier is synthesized under sterile conditions or sterilized subsequent to synthesis using conventional sterilization methods.